

11-347419US
Amendment dated 01/08/2004

09/727,499

01750024aa
Reply to office action mailed 10/10/2003

The following is a complete listing of all claims in the application, with an indication of the status of each:

Listing of claims:

- 11
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- 1 1. (currently amended) A fingerprint input apparatus, comprising:
2 a fingerprint sensor for reading a fingerprint and then outputting
3 fingerprint image data corresponding to said fingerprint;
4 a fingerprint analyzer for analyzing the quality of a fingerprint image
5 represented by said fingerprint image data and creating an
6 evaluation result representing the cause of said quality failure
7 and/or countermeasure against said cause when said analysis
8 result indicates a quality failure; and
9 an evaluation result display for displaying said evaluation result in a
10 plurality of ways.
- 1 2. (original) The fingerprint input apparatus defined in Claim 1, wherein said
2 fingerprint analyzer comprises:
3 a quality evaluation and processing means for performing the analysis
4 based on the image quality and/or feature points of a fingerprint
5 image represented by said fingerprint image data; and
6 an evaluation result display and processing means for driving said
7 evaluation result display based on said evaluation result.
- 1 3. (original) The fingerprint input apparatus defined in Claim 2, wherein said
2 fingerprint sensor comprises a light source and an image pickup device.

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1 4. (original) The fingerprint image apparatus defined in Claim 2, wherein
2 said quality evaluation and processing means performs the analysis based on
3 any one of the density of said fingerprint image, a fingerprint display area
4 indicated by said fingerprint image, the shape of ridges indicated by said
5 fingerprint image, and the position of a spiral shape indicated by said
6 fingerprint image.

1 5. (currently amended) The fingerprint image apparatus defined in Claim 2,
2 wherein said plurality of ways for evaluation result display is drawn from the
3 group of ~~includes~~ light emitting elements for visually displaying said
4 evaluation result, a display panel for visually displaying said evaluation result,
5 and an acoustic device for acoustically displaying said evaluation result.

1 6. (currently amended) The fingerprint image apparatus defined in Claim 2,
2 wherein said plurality of ways for evaluation result display includes a display
3 panel for visually displaying said evaluation result and light emitting elements
4 for visually displaying said evaluation result.

1 7. (currently amended) The fingerprint image apparatus defined in Claim ~~2~~ 6,
2 wherein said evaluation result display also includes an acoustic device for
3 acoustically displaying said evaluation result.

1 8. (original) The fingerprint image apparatus defined in Claim 1, wherein
2 said fingerprint sensor comprises a light source and an image pickup device.

1 9. (original) The fingerprint image apparatus defined in Claim 8, wherein
2 said quality evaluation and processing means performs the analysis based on
3 any one of the density of said fingerprint image, a fingerprint display area

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4 indicated by said fingerprint image, the shape of ridges indicated by said
5 fingerprint image, and the position of a spiral shape indicated by said
6 fingerprint image.

1 10. (currently amended) The fingerprint image apparatus defined in Claim 8,
2 wherein said plurality of ways for evaluation result display is drawn from the
3 group of ~~includes~~ light emitting elements for visually displaying said
4 evaluation result, a display panel for visually displaying said evaluation result,
5 and an acoustic device for acoustically displaying said evaluation result.

1 11. (currently amended) The fingerprint image apparatus defined in Claim 8,
2 wherein said plurality of ways for evaluation result display includes a display
3 panel for visually displaying said evaluation result and light emitting elements
4 for visually displaying said evaluation result.

1 12. (currently amended) The fingerprint image apparatus defined in Claim 8
2 11, wherein said evaluation result display also includes an acoustic device for
3 acoustically displaying said evaluation result.

1 13. (original) The fingerprint image apparatus defined in Claim 1, wherein
2 said quality evaluation and processing means performs the analysis based on
3 any one of the density of said fingerprint image, a fingerprint display area
4 indicated by said fingerprint image, the shape of ridges indicated by said
5 fingerprint image, and the position of a spiral shape indicated by said
6 fingerprint image.

1 14. (currently amended) The fingerprint image apparatus defined in Claim
2 13, wherein said plurality of ways for evaluation result display is drawn from

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3 the group of includes light emitting elements for visually displaying said
4 evaluation result, a display panel for visually displaying said evaluation result,
5 and an acoustic device for acoustically displaying said evaluation result.

1 15. (currently amended) The fingerprint image apparatus defined in Claim
2 13, wherein said plurality of ways for evaluation result display includes a
3 display panel for visually displaying said evaluation result and light emitting
4 elements for visually displaying said evaluation result.

11A 1 16. (currently amended) The fingerprint image apparatus defined in Claim 13
2 15, wherein said evaluation result display also includes an acoustic device for
3 acoustically displaying said evaluation result.

1 17. (currently amended) The fingerprint image apparatus defined in Claim 1,
2 wherein said plurality of ways for evaluation result display is drawn from the
3 group of includes light emitting elements for visually displaying said
4 evaluation result, a display panel for visually displaying said evaluation result,
5 and an acoustic device for acoustically displaying said evaluation result.

1 18. (currently amended) The fingerprint image apparatus defined in Claim 1,
2 wherein said plurality of ways for evaluation result display includes a display
3 panel for visually displaying said evaluation result and light emitting elements
4 for visually displaying said evaluation result.

1 19. (currently amended) The fingerprint image apparatus defined in Claim 1
2 18, wherein said evaluation result display also includes an acoustic device for
3 acoustically displaying said evaluation result.

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- All
- 1 20. (currently amended) A fingerprint input method comprising the steps of:
2 reading a fingerprint and then outputting fingerprint image data
3 corresponding to said fingerprint;
4 analyzing the quality of a fingerprint image represented by said
5 fingerprint image data and creating an evaluation result
6 representing the cause of said quality failure and/or a
7 countermeasure against said cause when said analysis result
8 indicates a quality failure; and
9 displaying said evaluation result in a plurality of ways.
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